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09/883,858	06/18/2001	Gang Zhao	1585/A27	2594

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EXAMINER

SPOONER, LAMONT M

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/883,858	<b>Applicant(s)</b> ZHAO ET AL.	
	<b>Examiner</b> Lamont M. Spooner	<b>Art Unit</b> 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2001.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 1 is objected to because of the following informalities:
  - In claim 2, line 13 "using the packages establish" should probably be - - using the packages to establish- -.
  - In claim 3, line 15, "the grammar" has antecedent issues with respect to claim 1.
  - In claim 17, line 24, "the grammar" has antecedent issues with respect to claim 1.
  - In claim 18, lines 28 and 29, "the member package" has antecedent issues.
  - Claims 1, 2, 19, 20, 21, 23, and 25, are objected to under 35 CFR 1.75(a), each claim must end with a period. The alphabetical bullets contain periods, and in claim 21, after "the stream" there should probably be a period, see *Fressola v. Manbeck*, 36 USPQ2d 1211 (D.D.C 1995)
  - In claim 21, line 6, "the stream" has antecedent issues.Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
3. Claims 1-25 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-25 are directed towards a disembodied data structure and method of making it. The claims involve no more than a

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manipulation of an abstract idea, (i.e. parse trees, grammar rules, mappings, packages, which are structures without any tangible medium which enable it's functionality to be realized), and therefore is nonstatutory, see *In re Warmerdam*, 33 F.3d 1354, 31 USPQ d 1754 (Fed. Cir 1994).

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 10-13 and 16 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. The "third subset of for which" is missing what the information that comprises the third subset, in **claims 10-13**, and in the disclosure (p.4.lines 24, 25), critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The third subset requires a description of it's content in order for an observed frequency of use can be determined, otherwise one skilled in the art would be unable to determine what the third subset refers to, in order to complete the step within the claims.

- **Claim 16** is rejected as being dependent upon it's rejected parent claim.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 5-9, 10-13 and 16 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In claims 10-13, "wherein the set of packages includes a third subset of for which the observed frequency of use..." is unclear, vague and indefinite. The material within the third subset has no description, therefore no bounds, wherein the "third subset of..." can be filled with any descriptive term, leaving the Examiner unable to decipher a clear concise description of the claim.
- Claim 16 is rejected as being dependent upon it's rejected parent claim.
- In claims 5-9, "the corresponding tree" lacks antecedent basis, and further is vague as to the Examiner is unable to determine if the tree is respective to a subset of packages or the set of packages.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4, and 17-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Tokuume et al. (Tokuume, US 5,101,349).

As per **claim 1**, Tokuume teaches a method of parsing a stream of tokens (Fig. 6b- "he sees tables) representative of language usage, the method comprising:

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storing a set of packages (Fig. 1 item 11-his phrase structure portions), each package being representative of a corresponding phrase-structure tree (Fig. 1 item 11, his phrase structure portions-Fig. 6b) derived from a rule-based grammar (Fig. 1 item 11-his "grammatical rule storing section"); and

parsing the stream using the packages to establish a structural description for the stream (Fig. 6b, C.8.lines 26-30-his constituent structure).

As per **claim 2**, Tokuume teaches a method of parsing a stream of tokens representative of language usage, the method comprising:

storing a set of packages (Fig. 1 item 11-his phrase structure portions), each package being representative of a corresponding phrase structure tree associated with a grammar (Fig. 1 item 11, his phrase structure portions-Fig. 6b), wherein a subset of the packages includes a set of relational descriptions (Fig. 1 item 11-his subsets within the "phrase structure portion" C.8.lines 30-35), and

parsing the stream using the packages establish a structural description and a relational description of the stream (Fig. 6b-his structural description as the parse tree information describing the structure, Fig. 6c his relational description as the "pred", "subj" etc. information, C.8.lines 30-35).

As per **claim 3**, Tokuume teaches claims 1 and 2, and further teaches wherein the grammar further specifies constraints (C.9.lines 5-11, his functional schema) on attribute values (ibid, C.10.lines 38-52-his gender, number, etc.), the packages contain information derived from such constraint, and such information is employed in parsing

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the stream using the packages (Fig. 6c-the "He" "Sees" "tables" as related to C.10.lines 38-52 as cited above, C.8.lines 41-43).

As per **claim 4**, Tokume teaches claims 1 and 2, and further teaches wherein packages in the set are selected to satisfy a desired set of constraints (C.8.lines 37-40-the using requiring selection of his "each phrase structure rules" as constraints on the packages of Fig. 1 item 11).

As per **claim 17**, Tokume teaches claims 1 and 2, and further teaches wherein the grammar is a structure function grammar (C.7.line 63-C.8.lines 3-his feature and sentence structure by means of unification grammar).

As per **claim 18**, Tokume teaches claim 1, and further teaches wherein:  
each member of a subset of the packages includes a function template (Fig. 7, C.9.lines 5-17,-his "form called functional schema" as the template) that functionally describes syntax associated with the phrase structure tree that the member package represents (ibid), and

parsing the stream includes evaluating relational content of the stream (C.8.lines 24, 24, C.9.line 13-C.10.line 53-his "F-structure", C.10.lines 39-53-evaluating as his feature values, Fig. 8-evaluated parsed stream).

As per **claim 19**, Tokume teaches a method of parsing a stream of tokens representative of language usage, the method comprising:

providing a set of phrase structure definitions (Fig. 6b, C.8.lines 26-30-his "C-structure"), a set of relational structure definitions (Fig. 6c, C.8.lines 41-43), and a set of

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mappings between them (Fig. 7, C.9.line 53-C.10.line-35-his description of the corresponding phrase structure to relation structure);

using the phrase structure definitions to provide a phrase structure of the stream (Fig. 6b); and

using the mappings and the relational structure definitions to process the resulting phrase structure to arrive at a functional description of the stream (C.10.lines 65-68, C.12.lines 27-29-his finally obtained "F-structure").

As per **claim 20**, Tokume teaches claim 19, and further teaches further using the relational structure definitions to process further the functional description and the stream to arrive at a further enhanced functional description (C.17.lines 36-53-feature structure furthered to conceptual structure in determining his "sentence structure", Figs. 18a, 18b).

As per **claim 21**, Tokume teaches a method of computing a phrase structure description from a given functional description, the method comprising:

providing a set of phrase structure definitions (Fig. 6b, C.8.lines 26-30-his "C-structure"), a set of relational structure definitions (Fig. 6c, C.8.lines 41-43), and a set of mappings between them (Fig. 7, C.9.line 53-C.10.line-35-his description of the corresponding phrase structure to relation structure);

using the mappings and the relational structure definitions to process the functional description to arrive at a phrase structure description of the stream (C.17.line 36-C.18.line 32-his generated "phrase structure"... C.18.line 31).



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As per **claim 22**, Tokume teaches claim 21, and further teaches wherein the given functional description results from using the relational structure definitions to parse a stream of tokens (C.17.lines 36-47-his "unification grammar which describes grammatical functions by using the features...", C.17.lines 49-52-his generated sentence structure as the functional description result).

As per **claim 23**, Tokume teaches a method of parsing a stream of tokens representative of language usage, the method comprising:

providing a set of phrase structure definitions (Fig. 6b, C.8.lines 26-30-his "C-structure"), a set of relational structure definitions (Fig. 6c, C.8.lines 41-43), and a set of mappings between them (Fig. 7, C.9.line 53-C.10.line-35-his description of the corresponding phrase structure to relation structure);

using the relational structure definitions to provide a relational structure of the stream (Fig. 6c); and

using the mappings and the phrase structure definitions to process the resulting relational structure to arrive at a phrase structure description of the stream (Fig. 6b, Fig. 6c, each figure explained previously in claim 2, Fig. 7-the arrived phrase structure description, C.9.line 53-C.10.line 35).

As per **claim 24**, Tokume teaches claims 19, 21, and 23, and further teaches where the phrase structure definitions, the set of relational structure definitions, and the set of mappings between them are pursuant to a structure function grammar (C.7.line 63-C.8.lines 3-his feature and sentence structure by means of unification grammar).

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As per **claim 25**, Tokume teaches claims 2 and 19, wherein, and further teaches a method of computing a semantic representation of an input stream, method comprising:

providing a set of semantic interpretation definitions (C.12.lines 41-46, 57-62);

parsing the stream in accordance with any of claims 2 and 19 to create a functional description (Fig. 6b, Fig. 6c as explained in claim 2, Fig 7-the arrived phrase structure description, C.9.line 53-C.10.line 35); and

computing the semantic representation from the functional description using the semantic interpretation definitions (C.14.lines 11-25-his "semantic portion...from...superordinate category").

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5-9, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokume in view of Uszkoreit (Strategies or Adding Control Information to Declarative Grammars, 1991).

As per **claims 5-9**, Tokume discloses claims 1, 2 and upon which claims 5-9 depend, but lacks disclosing wherein a first and second subset of packages for which the depth and width of the corresponding tree is within a desired first and second range.

However, Uszkoreit teaches having depths and widths within a desired range (p.242 para 3, 4-his depth and breadth threshold). Therefore, at the time of the invention, it would have been obvious to modify Tokuume with Uszkoreit by having depth and width thresholds associated with Tokuume's packages. The motivation for doing so would have been to use constraints on breadth and depth search of their corresponding trees, p.241 section 3.2, which will find a best (parse) result (p.242. para. 2).

As per **claims 14 and 15**, Tokuume and Uszkoreit teach and make obvious claims 5 and 7, upon which claims 14 and 15 depend. Tokuume further teaches:

wherein the first subset and second subset are identical to the set (C.12.lines 43-47-his "each ...having phrase structure portion, semantic portion, condition portion, and a message portion-thus necessarily making each set and subset identical with respect to respective portions, i.e.-phrase structure portion in one, phrase structure portion in a second, etc.).

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Nagase (US 5,687,384) teaches a method of parsing a stream of tokens including having packages representing phrase structures, and parsing the stream using the packages to establish a structural description for the stream, wherein a subset of the packages includes a set of relational descriptions.

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- Corston et al. (US 6,112,168) teaches having a width and depth of a set of parse trees subjected to a specified range.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M. Spooner whose telephone number is 571/272-7613. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571/272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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07/25/05

*Donald L. Storm*  
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